

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A system for ~~calculating~~ evaluating the probability figures for the outcome of an ~~immediate~~ immediately following defibrillator shock performed on a patient resulting in return of spontaneous circulation (ROSC) and providing a decision signal based thereon, the system comprising:

wherein

electrodes and sensors for connection to a patient,

a module for measuring CPR and ECG related data from said electrodes and sensors,

an analysis unit is connected with said module, which is measuring bio-electrical signals from electrodes connected to a patient,

the analysis unit is provided adapted to organizing organize said CPR and ECG related data continuously the bio-electrical signals continuous into time segments,

the analysis unit is provided adapted to calculate for each segments to calculate segment a combination parameter that characterise characterizing the condition of the heart,

the analysis unit is provided to by means of comparing for each is adapted to compare said combination of parameters and detect changes and magnitudes to find a corresponding of said combination of parameters,

said analysis unit also comprising storage means and being adapted to compare said changes and magnitudes with corresponding data from empirical data representing from earlier-made defibrillator treatments stored in said storage means, and

said analysis unit being adapted to provide a decision support signal based on said comparisons and said CPR related data, where there for each combination of parameters is assigned a probability figure, where the probability figure expresses the

~~number of defibrillator shocks that results in ROSC relative the total number of defibrillator shock for each combination of parameters, and~~  
~~the analysis unit has an output for the probability figure.~~

2. (Currently Amended) ~~A system~~ The system according to claim 1, wherein said CPR related data includes compression and ventilation data retrieved from said sensors ~~the bio-electrical signals is ECG signals.~~

3. (Currently Amended) ~~A system~~ The system according to Claim 1, wherein an algorithm is provided for the analysis unit (2) ~~is provided to calculate a probability figure, where the probability figure expresses the number of defibrillator shocks that results in ROSC relative the total number of defibrillator shock for each combination of parameters, and the analysis unit has an output for the probability figure by means of an algorithm.~~

4. (Currently Amended) ~~A system~~ The system according to Claim ~~1, 3,~~ wherein the algorithm for ~~calculation~~ calculating the probability figure is a table look up in a m-dimensional table, ~~where there~~ wherein for each table element there is stored a numerical value for the probability figure, the table look up ~~is being~~ determined from the value of ~~a~~ an m-dimensional vector, the value of the m-dimensional vector ~~is diverted~~ being derived from the calculation of the energy of respective m different signal sequences that is represented on the output of m different digital filters, where the signal on the input of each digital filter is the segment of the ECG signal.

5. (Currently Amended) ~~A system~~ The system according to ~~Claims 4~~ Claim 1, wherein the combination parameter comprises the value of the an m-dimensional vector ~~is diverted~~ derived from calculation of flatness, energy, frequency by the centre of gravity and frequency by the maximum point of a power density spectrum, where the power density spectrum ~~is diverted~~ derived from the ECG signal segment.

6. (Currently Amended) ~~A system~~ The system according to Claim 1, wherein the calculation unit is connected to a data storage ~~for, the calculation unit is storing for~~ each treatment parameters which describe the patient and parameters which ~~describes~~ describe the treatment, the calculation unit ~~is being~~ is connected to means for exchange of data, the exchange of data ~~occurs~~ occurs on a regular basis towards a central computer, where the calculation unit receives optimized algorithm for calculation of the probability figure, and the computer receives information that is stored ~~en~~ in the data storage.

7. (Currently Amended) ~~A system~~ The system according to Claim ~~1, 3,~~ 1, 3, further comprising ~~wherein there is provided~~ an optimised algorithm provided by first establishing ~~of~~ an updated set of empirical data consisting of information from a number of new patient treatments together with information from a number of earlier performed patient treatments, which all contain sequences of ECG where the outcome after ~~shock~~ shocks are known; the optimised algorithm occur by iterative search after filter coefficients by m digital filters, where the filter coefficients are adjusted iterative in view of performance of a classification routine, wherein again the classification routine is adjusted iterative in view of performance and generality, where the performance is defined as the sum of sensitivity and specificity for classification of each of the ECG sequences to outcome classes ROSC and non-ROSC, respectively, where the real outcome of shock is known for each ECG sequence, and where generality is fulfilled ~~as if~~ if the classification routine has the same performance for ~~a~~ an arbitrary composite half of empirical material as for the rest of the empirical material, where measurement of generality and performance is provided in that each ECG sequence in the empirical material is expressed as ~~a~~ an m-dimensional vector calculated from energy at the output of m digital filters, where the classification routine classifies each m-dimensional vector to one of the outcome classes ROSC, non-ROSC, respectively, where the performance is measured as the sum of sensitivity and specificity of the classification

routine, where ~~a~~ an arbitrary composite half of empirical material has the same performance as the rest of the empirical material, the optimised algorithm for calculation of the probability figure consists of a matrix having m matrix elements, where each matrix element express a probability figure, where the probability figure for each matrix element is provided by grouping ECG-sequences which is expressed by approximately identical m-dimensional vectors, where the occurrence of ECG which resulted in ROSC by shock plus the sum of occurrence of ECG which resulted in non-ROSC by shock constitute the probability figure for the matrix element, the m-dimensional matrix together with the filter coefficient constitute the optimised algorithm for calculation of the probability figure.

8 (Currently Amended) ~~A system~~ The system according to Claim 1, wherein the output of the analysis unit is connected to a receiver in the shape of a display unit.

9. (Currently Amended) ~~A system~~ The system according to Claim 1, wherein the receiver of the decision support signal is a defibrillator.

Claim 10. (Canceled).

11. (Currently Amended) ~~A system~~ The system according to ~~Claims~~ Claim 1, wherein the analysis unit (2) identifies periods of positive change in the ~~probability figure~~ combination parameter together with parameters that characterise the treatment, and passes on the numerical value of the positive change ~~in the probability figure~~, together with the mean value of each treatment parameter over the period, to a receiver.

12. (Currently Amended) ~~A system~~ The system according to ~~Claims 1~~ Claim 11, wherein the receiver of the said numerical value ~~of the positive change in the~~

probability figure, together with the mean value of each treatment parameter over the period, is a display unit.

13. (Currently Amended) ~~A system~~ The system according to ~~Claims 1~~ Claim 11, wherein the receiver of the numerical value of the positive change in the probability figure, together with the mean value of each treatment parameter over the period, is an algorithm for decision support for the choice of treatment.

14. (Currently Amended) ~~A system~~ The system according to Claim 1, wherein a device for indicating patient specific information and/or specific information regarding the treatment is connected to the analysis unit ~~(2)~~.

15. (New) A system provided as a part of an external defibrillator for measuring ECG and CPR related parameters and calculating a characteristic feature of the measured ECG of a patient in cardiac arrest, and for providing a decision support signal to the system user as a function of the characteristic ECG feature and CPR related parameters, the system comprising:

- a number of sensors for measuring CPR related parameters;
- a calculation unit for receiving said measured parameters and for determining the magnitude and rate of change of said ECG feature;

- a storage means for storing decision limits based on empirical data, said empirical data corresponding to said measured parameters, said calculation unit being adapted to provide a decision support signal also being based on the comparison between said decision limits and said determined magnitude and rate of change.

16. (New) The system according to claim 15, wherein the characteristic feature of ECG is a probability figure that the outcome of an immediately following defibrillator shock will result in spontaneous circulation.

17. (New) The system according to claim 15, wherein the probability figure is a function of a property vector, said property vector comprising a set of energy calculations from the output from a corresponding set of digital filters.

18. (New) The system according to claim 15, wherein said sensors to measure CPR related parameters comprise a sensor which is arranged to measure how chest compressions are delivered to patient.

19. (New) The system according to claim 15, wherein said sensors to measure CPR related parameters comprise a sensor system which is arranged to measure how ventilations are delivered to a patient.

20. (New) The system according to claim 15, wherein the decision support is arranged as a predetermined algorithm.

21. (New) The system according to claim 20, wherein the defibrillator provides the user with visual and verbal prompts as a function of said algorithm.

22. (New) The system according to claim 15, wherein the parameters of CPR comprise compression depth, compression rate, amount of compressions.

23. (New) The system according to claim 15, wherein the calculation unit is further connected to an impedance measurement system.

24. (New) The system according to claim 23, wherein said impedance measurement is arranged to measure blood flow.

25. (New) The system according to claim 15, wherein the calculation unit is further connected to means for input of patient specific information.

26. (New) The system according to claim 25, wherein the ECG feature is calculated as a function of patient specific information and the measured ECG.